

REMARKS

This is in response to the non-final Office Action mailed March 7, 2011. Claims 2-17 and 21-26 are amended. Claims 1-26 are currently pending, of which claims 6, 9, 10, 15, 16, and 20-26 are withdrawn.

Reconsideration of the application is respectfully requested in view of the amendments and comments provided herein.

The Office Action

Claims 5, 6, 9, 10, and 14-16 were withdrawn from further consideration pursuant to 37 CFR 1.142(b).

Restriction was required between Group I, exemplified by claims 1-19, and Group II, exemplified by claims 20-26, under 35 U.S.C. 121 and 372.

Claims 2-4, 7-8, 11-13, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-4, 11-12, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 1-198624, abstract to Matsuo et al. (hereinafter "Matsuo").

Claims 1-4, 8, 11-13, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,362,836 to Helmer-Metzmann et al. (hereinafter "Helmer-Metzmann").

Claims 1-4, 7-8, 11-13, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,902,801 to Charnock et al. (hereinafter "Charnock").

Claims 1-4, 7-8, 11-13, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0224202 to Bridges et al. (hereinafter "Bridges").

Elections/Restrictions

Applicants provisionally elected to prosecute Group I, claims 1-19, in a telephone conversation on March 2, 2011. Applicants hereby affirm that election.

Regarding the Election made October 12, 2010, Applicants submit that the election reads on claims 5 and 14 as well. Thus, Applicants submit that claims 5 and 14 should also be examined on the merits at this time.

Indefiniteness Rejection - § 112, Second Paragraph

The Examiner rejected several claims for reciting "A membrane of an electrode according to claim 1" and suggested amending the claims to recite "The membrane or the electrode according to claim 1". Applicants have amended the claims in accordance with the Examiner's suggestion.

Regarding claim 4, the Examiner stated that it was unclear if the moiety of Formula I, II, or III was in addition to the moieties of Formula A or further defined Formula A. Applicants submit that claim 4 is sufficiently clear in specifying that the moiety of Formula A is a part of Formula I, II, and/or III. In particular, claim 4 specifically states "wherein unit A is a part of unit I, II, and/or III".

Anticipation Rejection - § 102(b)

The pending claims require the moiety of Formula A to be included in an ion-conducting polymeric material. Claim 1 and the claims depending therefrom further require the ion-conducting polymeric material to be included in a polymer electrolyte membrane or gas diffusion electrode. Matsuo does not appear to disclose or relate to ion-conducting polymeric materials, polymer electrolyte membranes, or gas diffusion electrodes. Claim 18 further requires that the polymer electrolyte membrane according to claim 1 is incorporated into a fuel cell or electrolyser. Matsuo fails to teach any of these structural limitations and thus cannot anticipate the pending claims.

Obviousness Rejections - § 103(a)

The Examiner acknowledged that each of the cited references fails to disclose meta-, i.e. 1,3-, substitutions as in the moiety of instant Formula A. Instead, the cited references only disclose para-, i.e. 1,4-, substitutions. However, the Examiner asserted that "compounds which are position isomers... are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties". There are several problems with the Examiner's reasoning.

First, a person having ordinary skill in the art would not expect 1,3- and 1,4-substituted polymers to exhibit the same properties. On this point, Applicants note that

para-linkages may define long chains. On the other hand, meta-linkages can introduce kinks into the chains which may completely reorient the chains of the meta isomer compared to the para isomer. Thus, a person having ordinary skill in the art could not predict the effect on various properties of moving from para- to meta-substituted chains. In particular, a person having ordinary skill in the art would expect properties such as crystallinity, conductivity, and other electronic and steric effects to be altered. Thus, Applicants submit that the Examiner's reasoning regarding isomers is not applicable to the differences between meta-substitutions in the present claims and para-substitutions in the cited references because a person having ordinary skill in the art would recognize that the polymer backbones are very different structurally.

Second, Applicants submit that the present specification provides evidence that the meta-substituted isomers of the present claims exhibit different properties compared to the para-substituted isomers of the cited references. On this point, Applicants note that the present specification is evidence in the record and must be considered. MPEP § 2145; *In re Soni*, 54 F.3d 746, 750, 34 USPQ2d 1684, 1687 (Fed. Cir. 1995) (error not to consider evidence presented in the specification). Specifically, the meta-substituted phenyl moieties of Formula A provide a means for controlling sulfonation and an advantage in terms of thermal stability. See Example 14 which illustrates how similar materials have different stabilities, depending on the substitution of the rings in the polymers. These results are not expected based on the teachings of the cited references. In fact, the improved thermal stability of the materials of the present claims is surprising. See page 3, lines 11-16 of the specification.

Third, the present claims require that the moieties of Formula A are, on average, substituted with more than 1 group which provides ion-exchange sites. The cited references only appear to disclose monosubstitutions. For example, Helmer-Metzmann only appears to disclose mono-sulfonation.

Fourth, Applicants note that Helmer-Metzmann further supports the contention that similar materials can exhibit very different properties. Specifically, Helmer-Metzmann discloses that polymers with the same general structure and degree of sulfonation can have differing physical and mechanical properties. See column 6, lines 1 and 2

For at least the reasons described above, Applicants submit that the present claims distinguish patentably over the references of record. As such, withdrawal of the rejections and allowance of the claims are respectfully requested.

CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-26) are now in condition for allowance.

☒ Remaining Claims, as delineated below:

(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT LESS HIGHEST NUMBER PREVIOUSLY PAID FOR		(3) NUMBER EXTRA
TOTAL CLAIMS	26	- 26 =	0
INDEPENDENT CLAIMS	3	- 3 =	0

☒ This is an authorization under 37 CFR 1.136(a)(3) to treat any concurrent or future reply, requiring a petition for extension of time, as incorporating a petition for the appropriate extension of time.

☒ The Commissioner is hereby authorized to charge any filing or prosecution fees which may be required, under 37 CFR 1.16, 1.17, and 1.21 (but not 1.18), or to credit any overpayment, to Deposit Account 06-0308.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call the undersigned, at Telephone Number (216) 363-9000.

Respectfully submitted,

Fay Sharpe LLP



Scott A. McCollister, Reg. No. 33,961

Mark D. Klinko, Reg. No. 59,380

The Halle Building, 5th Floor

1228 Euclid Avenue

Cleveland, Ohio 44115-1843

216.363.9000

August 8, 2011
Date

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